

lector came across them at the Treasury, situated at the opposite side of the city. The specimens vary a little in the width of the black border and the number of the white spots in it, but to no greater extent than in the American specimens with which I compared them.

This sudden American invasion of the whole continent seems worth recording.

Melbourne, March 26, 1873.

LII.—*Descriptions of new Species of Fossorial Hymenoptera in the Collection of the British Museum.* By FREDERICK SMITH, Assistant in the Zoological Department, British Museum.

THE species described in the present paper were collected by Mr. H. W. Bates in the Amazons Valley, in Brazil, and formed part of his private collection; they were purchased by the Trustees of the British Museum, and are nearly all unique in the National Collection. The most valuable additions made to the Fossorial tribe are the species now added to the following genera:—to *Ceropales* four species, to *Aporus* three, to *Ampulex* one, to *Trigonopsis* two, and to *Trachypus* two; many new and beautiful additions are made to the Pompilidæ, Larridæ, Crabronidæ, and the Philanthidæ.

Tribe FOSSORES, Latr.

Family Pompilidæ.

Genus POMPILUS, Fabr.

Pompilus fervidus.

Female. Length 7 lines. Ferruginous, with the wings fuscous. Head: the eyes, ocelli, tips of the mandibles, and the seven apical joints of the antennæ, as well as the eighth joint above, black. Thorax: the posterior margin of the prothorax, the tegulæ, postscutellum, and the posterior margin of the metathorax yellow; the wings dark fuscous and iridescent, with their apical margins and hinder margin of the posterior pair paler; the tibiæ and tarsi with ferruginous spines. Abdomen with the apical margins of the segments bordered with fusco-ferruginous bands, indistinctly defined.

Hab. Para.

Pompilus decedens.

Female. Length $9\frac{1}{4}$ lines. Head, thorax, legs, and base of the abdomen yellow, the rest of the latter black. The antennæ reddish yellow, with the six apical joints fuscous; the eyes black at their outer margins; the tips of the mandibles black. Thorax of a reddish yellow above; the metathorax, tegulæ, the scutellum at the sides, the postscutellum, and the posterior margin of the metathorax paler, the latter being yellowish white; legs reddish, with a line on the posterior femora, within, and the posterior tarsi black; wings flavo-hyaline, palest at their apical margins, the nervures ferruginous; the costal nervure fuscous. Abdomen: above black at the extreme base; the rest of the first segment reddish yellow, and with a pale spot next to the black base; the second segment at its base, as well as the third, has a yellow fascia, the latter narrowest and attenuated in the middle; the second segment reddish yellow, with two large black maculæ, which occupy nearly the entire segment, except a central line and the apical and lateral margins; beneath, the three basal segments are pale yellow, except the apical margin of the third, which is black.

Hab. Para.

Pompilus diversa.

Female. Length 5–6 lines. Black, variegated with silvery pile; wings hyaline, with two transverse fuscous fasciæ. Head: the face covered with silvery pile, in very fresh examples it has a golden lustre; the anterior margin of the clypeus, which is transverse, more or less obscurely ferruginous; the mandibles ferruginous at their apex and the palpi of the same colour, but paler; the head is wider than the thorax; the antennæ fulvous towards their apex, sometimes obscurely so. Thorax: the posterior margin of the prothorax angulated; a silvery spot on each side of the scutellum close to the lateral margins, and the metathorax silvery at its apex, which is rounded; an impressed line extends from the base to the apex of the metathorax; in small specimens the legs are obscurely ferruginous beneath. Abdomen: the basal margins of the segments more or less ornamented with silvery pile, glittering brightly in certain lights.

Male. Length 5 lines. Of a much more slender form than the female, and more brightly decorated with silvery pile; the face, coxæ, and abdomen at its base very bright; the basal segment much attenuated; the legs elongate, slender, and spinose.

Hab. Ega; Para.

A series of specimens of this species, on being carefully

examined, show that in all probability, on the insect being freshly disclosed, the disk of the mesothorax is covered with pale golden pile; some examples have traces of it.

Pompilus varietatis.

Female. Length 4–5½ lines. Black; the thorax and abdomen more or less maculated with minute yellow spots. Head rather wider than the thorax; the anterior margin of the clypeus widely truncate; the palpi pale testaceous; the antennæ fulvous beneath. Thorax: the posterior margin of the prothorax arcuate, and frequently bordered with yellow; the mesothorax, in some examples, with two very narrow longitudinal yellow lines; a minute spot on each side of the scutellum, the post-scutellum, two longitudinal lines on the metathorax, and its posterior margin yellow; the extreme apex of the coxæ, trochanters, femora, and of the anterior tibiæ rufo-testaceous; the calcaria and spines on the tibiæ and tarsi pale rufo-testaceous; the anterior half of the fore wings dark fuscous; the anterior margin of the posterior pair with a slight fuscous tint. Abdomen covered with a fine glossy cinereous pile; the basal segment with two yellow circular spots; in some examples the spots are larger and of an irregular shape, and form a large only slightly interrupted transverse macula; in other examples there is a minute spot at the extreme lateral basal margins of the second and third segments.

Hab. St. Paulo; Ega; Para (Amazons).

All the varieties received are described; but probably others exist. The longitudinal lines on the metathorax are in different examples more or less obsolete, sometimes entirely so. The smaller specimens appear to be the most highly coloured.

Pompilus vividus.

Male. Length 5 lines. Black, and covered with silvery pile, which is most dense on the face, coxæ, femora beneath, and also on the three basal segments of the abdomen beneath, the other segments being black. The posterior margin of the prothorax with a white band, which is slightly interrupted in the middle; the wings hyaline, the anterior pair with a dark fuscous cloud, which extends to the base of the marginal cell; a narrow fuscous fascia crosses the wing at the apex of the externo-median cell; a space at the base of the metathorax black, being without a covering of pile; a portion of the apical margins of the three basal segments of the abdomen black and without pile, the third margin narrowest; the anterior tibiæ

and tarsi slightly, and the intermediate and posterior pairs very spinose.

Hab. Santarem.

Pompilus detectus.

Male. Length $5\frac{1}{2}$ lines. Black, abdomen partly red, and with dark fuscous wings. The face with a covering of silvery pile; the clypeus widely truncate, the lateral angles rounded, and having a brownish pile. The posterior margin of the prothorax arcuate and with a yellow border, somewhat obscure; the metathorax smooth, covered with brownish pile, and of a blue tinge in certain lights; the wings slightly iridescent in some positions. Abdomen: the three basal segments ferruginous, and the basal margin of the fourth narrowly so; the four apical segments with a thin cinereous pile.

Hab. Santarem.

Pompilus vitabilis.

Female. Length 5 lines. Head and thorax black, the abdomen blue-black; the wings dark fuscous, with a splendid violet iridescence, which varies to purple in certain lights. The face covered with silvery pile; the anterior margin of the clypeus sinuated; the apex of the mandibles ferruginous. Thorax: above, in certain lights, with more or less of a blue tinge, particularly the metathorax, which is smooth and opaque. Abdomen subpetiolate; the apical portion of the fourth segment, and the fifth and sixth and seventh entirely, covered with a thin cinereous pubescence; the abdomen beneath, as well as the coxæ and femora, covered with a changeable silvery pile.

Hab. Para.

Pompilus exclusus.

Male. Length $5\frac{1}{2}$ lines. Blue, with green tints in certain lights; wings dark fuscous; antennæ, mandibles, and clypeus black, the latter widely truncate. The posterior margin of the prothorax angulate; the metathorax smooth and rounded posteriorly; the wings have a violet and purple iridescence; the first submarginal cell as long as the two following; the second cell subquadrate, receiving the recurrent nervure near its apex; the third submarginal cell much restricted towards the marginal cell. Abdomen of a bright blue-green.

Hab. Para.

Pompilus iratus.

Male. Length $4\frac{3}{4}$ lines. Head and thorax black, with yellow

markings; abdomen red. The head and thorax covered with short cinereous pile; the scape of the antennæ yellow in front, and covered with cinereous pile; the flagellum fulvous beneath and fuscous above. Thorax: the tegulæ and posterior margin of the prothorax broadly yellow; wings hyaline, and with a dark fuscous cloud beyond the third submarginal cell, the nervures dark fuscous; the posterior tibiæ, their apical calcaria and their tarsi, as well as the intermediate pair and the spurs of the tibiæ, pale yellowish white; the tips of the tarsal joints and of the posterior tibiæ black, as are also their spines. Abdomen ferruginous, with cinereous bands at the base of the segments.

Hab. Para.

Pompilus conterminus.

Female. Length $3\frac{2}{3}$ lines. Black, with a broad yellow fascia on the abdomen, and hyaline wings. Head: a narrow line behind the eyes and a broader one at their inner orbits yellowish white; the clypeus covered with silvery pile. The thorax, coxæ, and femora, as well as the base of the abdomen, with a coating of silvery pile; the posterior margin of the prothorax, which is arcuate, with a narrow yellow fascia; wings hyaline, their nervures fuscous, and the anterior pair with a fuscous cloud beyond the third submarginal cell, covering the apex of the wing; the intermediate femora at their apex, and the posterior pair as well as the tibiæ, ferruginous. Abdomen: the basal segment covered with silvery pile; a broad yellow fascia at the base of the third segment, slightly narrowed in the middle.

Hab. Para.

Genus AGENIA, Schiödte.

Agenia agitata.

Female. Length 3–4 lines. Black; wings hyaline, with a fuscous macula; the abdomen petiolated. Covered with a thin slate-coloured sericeous pile; on the face, coxæ, and posterior portion of the metathorax it is silvery. The mandibles ferruginous at their apex; in small examples the apical margin of the clypeus is testaceous; the antennæ fulvous beneath, brightest in small examples. Thorax: the posterior margin of the prothorax arcuate; wings clear hyaline, with a fuscous cloud occupying the second submarginal cell, and usually extending more or less into the third discoidal cell; the third submarginal cell twice as long as the second and slightly restricted towards the marginal one; the anterior tibiæ and tarsi, and all the calcaria that arm the apex of the

tibiæ, rufo-testaceous; these are palest in small examples. Abdomen with a short petiole at its base.

Hab. Para; Ega; Santarem.

Agencia multipicta.

Male. Length $6\frac{1}{2}$ lines. Black; the head and thorax spotted and striped with pale yellow. Head: the labrum, clypeus, scape in front, a broad stripe on each side of the face, and a narrow line behind the eyes pale yellow. Thorax: the posterior margin of the prothorax, the outer margin of the tegulæ, a stripe over the tegulæ, an ovate spot before the scutellum and a larger one on it, the postscutellum, three spots at the base of the metathorax, and its apical portion pale yellow; wings flavo-hyaline; the nervures black, with a fuscous cloud over the marginal and two submarginal cells, and from them to the apex of the wings; the anterior coxæ in front, a stripe on the inner margin of the intermediate pair, and on both margins of the posterior ones pale yellow; the posterior femora yellow beneath. Abdomen subsericeous, and with a blue tinge; its apical segment pale.

Hab. Para.

It is probable that the yellow markings will be found to be more vivid in some examples. The unique one in the Museum collection is mutilated, and the wings are ragged at their apical margins; it is probable that it had been long discoloured at the time of its capture.

Agencia gloriosa.

Male. Length $7\frac{1}{2}$ lines. Black, and covered with a bright golden pile, exceedingly brilliant in certain lights. Head: the anterior margin of the clypeus sinuate; the sixth, seventh, and eighth joints of the antennæ orange-yellow. Thorax: the wings flavo-hyaline, with a faint cloud in the marginal, second submarginal, and over the apex of the third discoidal cell; the tips of all the wings faintly clouded; the legs without golden pile, except the coxæ, which are brightly adorned. Abdomen petiolate.

Hab. Para.

Agencia comparata.

Female. Length 5 lines. Black; wings hyaline; posterior femora ferruginous. The insect covered with fine hoary pile; on the clypeus and sides of the thorax it has a silvery lustre; the cheeks, sides of the thorax, and the metathorax with a long thin white pubescence; the palpi testaceous. Thorax:

the posterior margin of the prothorax arcuate; the tarsi obscure ferruginous; the nervures of the wings nearly black; the wings iridescent. Abdomen petiolated; the apical margin of the second and following segments narrowly testaceous.

Hab. Para.

Agenia cæruleocephala.

Female. Length 5 lines. Head and thorax blue, exhibiting tints of purple, green, and violet in certain lights; abdomen ferruginous. Head purple, covered with silvery pile below the insertion of the antennæ; the mandibles, palpi, and scape of the antennæ beneath pale testaceous; the flagellum fulvous beneath. Thorax: the posterior margin of the prothorax subangular, and bordered with silvery pile; the sides of the thorax silvery; the metathorax with a central longitudinal impressed line, which widens towards the apex; wings hyaline and iridescent, the nervures ferruginous; legs ferruginous. Abdomen petiolated; the base of the petiole blue.

Hab. Para; St. Paulo.

Agenia deceptor.

Female. Length 4 lines. Pale ferruginous, abdomen darkest, with the vertex and thorax above dark fuscous. Head: above the insertion of the antennæ nigro-æneous, and with a pale stripe at the margin of the eyes; the apical half of the antennæ fuscous above. Thorax: the posterior margin of the prothorax arcuate, and bordered with a pale ferruginous band; the postscutellum, tegulæ, and apex of the metathorax pale ferruginous; wings hyaline, the superior pair with their anterior margin slightly fuscous. Abdomen petiolated.

Hab. Para.

Agenia timida.

Male. Length $3\frac{1}{2}$ lines. Head and thorax blue; abdomen black, with the petiole ferruginous. Head wider than the thorax; the face and clypeus silvery; the margins of the clypeus, apex of the mandibles, palpi, inner orbits of the eyes not as high as their vertex, and the scape of the antennæ in front very pale ferruginous. The posterior margin of the prothorax arcuate; the metathorax with a central longitudinal depression, and the sides with silvery pubescence; wings hyaline and iridescent, the nervures and tegulæ testaceous; the legs ferruginous, the apical joints of the anterior and intermediate pairs, and the posterior pair entirely, as well as the apex of the tibiæ, fuscous. Abdomen: the petiole and basal

margin of the second segment ferruginous ; the apical segment white.

Hab. Para.

Agenia reversa.

Female. Length $3\frac{3}{4}$ lines. Ferruginous, with the anterior wings, beyond the second submarginal cell, dark brown. Head rather wider than the thorax ; the three basal joints, and a portion of the fourth, of the antennæ ferruginous, the rest black ; the joints of the antennæ widest at their base, most obviously so when viewed on the underside ; the scape of the antennæ beneath, the lower portion of the inner orbits of the eyes, the clypeus, labrum, mandibles, and palpi white. Thorax : the prothorax transverse, narrow, and very slightly curved ; the anterior coxæ white beneath ; the posterior tarsi fuscous. Abdomen narrow, and acuminate both at the base and the apex.

Hab. Para.

This species is very remarkable in having the base of the antennal joints wider than their apex ; in this particular it agrees with the male of the British and European species, *Agenia variegata*.

Agenia gracilentia.

Male. Length 3 lines. Black, covered with hoary pile ; wings hyaline ; the base of the second segment of the abdomen yellow. Head : the mandibles and palpi pale testaceous ; a line on the scape of the antennæ and the third joint yellow beneath ; three or four of the following joints obscurely ferruginous. The posterior margin of the prothorax arcuate ; the anterior femora in front, the tibiæ and tarsi, the tips of the intermediate femora, and the tibiæ rufo-testaceous ; the calcaria at the apex of all the tibiæ white ; wings hyaline and iridescent, their tegulæ testaceous, the nervures fuscous ; a faint cloud in the second submarginal cell, and extending over the apical portion of the third discoidal one ; there is also a slight fuscous stain at the apex of the externo-median cell. The first segment of the abdomen forming a petiole, which is pale beneath.

Hab. Para.

Agenia modesta.

Male. Length $3\frac{1}{2}$ lines. Black, the legs variegated with white ; the abdomen fuscous at the base, and with a white fascia, which covers the apical margin of the first segment very narrowly, and a broader portion of the base of the second segment ; the apical segment also white. Head : the scape

of the antennæ in front, the clypeus, mandibles, and palpi white; the coxæ, anterior legs, and the base of all the tibiæ white; the wings hyaline and iridescent; the tegulæ testaceous, a fuscous cloud occupying the marginal and second and third submarginal cells; the prothorax with a white fascia on its posterior margin. Abdomen: the three basal segments white beneath.

Hab. Para.

Agenia ordinaria.

Female. Length $5\frac{1}{3}$ lines. Black, with the abdomen red, and anterior wings fuscous. Head: a pale abbreviated line at the inner orbits of the eyes; the palpi also pale. Thorax: the posterior margin of the prothorax arcuate; the metathorax narrowed to, and truncate at, the apex; the third submarginal cell nearly twice as wide as the second, and much narrowed towards the marginal cell; the posterior wings hyaline and beautifully iridescent. The extreme base of the abdomen black. The entire insect covered with a thin hoary pile.

Hab. Santarem.

Agenia aureicornis.

Female. Length $3\frac{3}{4}$ lines. The head and thorax olive-green; the abdomen blue; the wings with two fuscous fasciæ. Head: the clypeus with a changeable silvery pile; the scape of the antennæ in front, and the five apical joints of the antennæ, bright orange-yellow; the rest of the joints obscure fulvous beneath. Thorax: the first fascia crosses the anterior wings at the apex of the externo-median cell and the base of the first submarginal, the second from the base of the marginal. Abdomen smooth and shining, and thinly covered with hoary pile; a few long black hairs at its apex.

Hab. Santarem.

Agenia gratiosa.

Female. Length 4 lines. Green, with the anterior margin of the fore wings narrowly fuscous. Head a little wider than the thorax; the lower part of the face and the clypeus covered with silvery pile; the antennæ fulvous beneath and fuscous above; mandibles ferruginous towards their apex, and the palpi pale testaceous. Thorax: the posterior margin of the prothorax, and the base, sides, and apex of the metathorax, with short glittering silvery pubescence; wings hyaline, the fuscous stain covering the marginal, first and second submarginal cells, and extending at each end a little way beyond; the nervures pale testaceous, with those towards the margin of the anterior

wings fuscous ; legs pale ferruginous, with the coxæ, and femora above, green, the outside of the tibiæ more or less tinted with green, and the apical joints of the tarsi fuscous. Abdomen petiolated, smooth, and shining.

Hab. Ega.

Agenia tarsata.

Female. Length 4 lines. Green ; legs ferruginous, with the tarsi of the intermediate and posterior legs black. Head a little wider than the thorax ; the clypeus and lower part of the face silvery ; the apex of the mandibles, the palpi, and scape in front pale ferruginous ; the flagellum fulvous beneath. Thorax : the sides and the metathorax with a changeable silvery pubescence ; wings hyaline, nervures ferruginous. Abdomen petiolate, shining, and covered with a thin hoary pile.

Hab. Ega.

Agenia latabilis.

Female. Length 7 lines. Black ; wings subhyaline, with a brown spot at their apex ; abdomen with ferruginous spots. Head and thorax thinly covered with hoary pile ; the legs stout and destitute of spines ; the metathorax rounded ; wings subhyaline, and with a fuscous spot at the apex of the anterior pair, which extends from the base of the third submarginal cell to the apex of the wing. Abdomen : a large ferruginous spot on each side of the first and second segments, those on the second nearly uniting ; the fourth (except its extreme base) and the two following ferruginous.

Hab. Para.

Agenia fortipes.

Male. Length 6 lines. Black, with dark brown wings. The face covered with silvery pubescence, brilliant in certain lights ; the clypeus widely truncate. The thorax has on the sides and beneath a thin hoary pubescence ; the prothorax, margins of the mesothorax and of the metathorax with a bright silvery pile ; the coxæ are adorned in the same way, but it is only observable in certain lights ; the wings have violet, purple, and coppery iridescence. Abdomen petiolate, and with an obscure blue tinge ; the three apical segments have a thin, hoary, short pubescence.

Hab. Para.

Agenia conspicua.

Female. Length 5 lines. Black ; wings subhyaline and

clouded; abdomen variegated with white and yellow. Head scarcely as wide as the thorax, and both covered with silky white pile; the palpi pale testaceous. The posterior margin of the prothorax arcuate; the metathorax longitudinally depressed; the wings fusco-hyaline, a darker cloud occupying the marginal and second and third submarginal cells; the anterior legs in front and their tarsi ferruginous. Abdomen subsessile, having a fine silky pile; the apical margins of the first and second segments, and the following segments entirely, reddish yellow; a large pale yellowish-white macula on each side of the second segment.

Hab. Para.

Agenia cursor.

Male. Length $5\frac{1}{4}$ lines. Black, with a fine silky pile; legs elongate, the posterior pair longer than the insect; anterior wings dark fuscous, and having a clear hyaline space that occupies the three discoidal as well as the first apical cell. Head transverse, as wide as the thorax; the face below the insertion of the antennæ and the clypeus covered with silky pile. Thorax: the sides, beneath, and the apex of the metathorax silvery; the anterior tibiæ beneath and the tarsi obscure ferruginous. Abdomen: the first segment forming a petiole which is longer than the metathorax; the other segments have a blue tinge.

Hab. Para.

[To be continued.]

LIII.—*Observations on M. Favre's Paper on a New Classification of Ammonites.* By Dr. J. E. GRAY, F.R.S. &c.

As to M. Keferstein's theory that the *Aptychus* is "a protecting organ of the nidamentary glands of the female Ammonite," which M. Favre considers certain—and he further goes on to say, "the soft tissue of this gland has a great resemblance in its various parts to the structure of the different types of *Aptychus*, and the form of the *Aptychus* corresponds very well with that of the outer part of this gland" (p. 366)—I do not offer any decided opinion on this extraordinary theory, as I have never studied the question; at the same time I may observe that it is not supported by any thing I have observed in the structure or habits of recent Mollusca, and is, indeed, entirely opposite to all my experience as a student in the structure and development of shells.